

#### ABSTRACT OF THE DISCLOSURE

An object of the present invention is to provide a method that allows the heat flux distribution on an object surface to be measured even when the heat flux is an unsteady or short-duration phenomenon, and that does not depend on the material of the object; and to provide a system for measuring the heat flux distribution on an object surface with the aid of this method. In the method for measuring the heat flux on an object surface in accordance with the present invention, the emission intensity of a temperature-sensitive paint that varies with the temperature of the object surface is chronologically captured and sensed as video information at a high frame rate, an image of the temperature distribution on the object surface is obtained based on characteristics between the emission intensity and temperature calibration, and the heat flux in each domain is calculated by the Cook and Feldermann method.